

INCH-POUND

MIL-I-19878C(MC)
21 DECEMBER 1990
SUPERSEDING
MIL-19878B(MC)
12 August 1965

MILITARY SPECIFICATION

INSIGNIA, BRANCH OF SERVICE: METAL; HOSPITAL CORPSMAN
AND DENTAL TECHNICIAN

This specification is approved for use by the U. S. Marine Corps, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers requirements for distinctive metal insignia.

1.2 Classification. The insignia shall be of the following types as specified (see 6.2).

Type I - Hospital Corpsman
Type II - Dental Technician

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications and standards form a part of this document to the

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to the Commanding General (PSE-C), Marine Corps Research, Development, and Acquisition Command, Washington, DC 20380, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC-NA

FSC 8465

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distribution is unlimited.

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extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

SPECIFICATION

FEDERAL

PPP-B-676 - Boxes, SetUp

MILITARY

MIL-F-495 - Finish, Chemical, Black, for Copper Alloys
MIL-B-17757 - Box, Shipping, Fiberboard (Modular Sizes)

STANDARDS

FEDERAL

FED-STD-141 - Paint, Varnish, Lacquer, and Related
Materials; Methods of inspection, Sampling
and Testing
FED-STD-151 - Metal; Test Methods

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for
Inspection By Attributes
MIL-STD-129 - Marking For Shipment And Storage

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094)

2.1.2 Other Government documents and publications. The following other Government documents and publications form a part of this specification to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

LAWS AND REGULATIONS
U.S. Postal Service Manual

(Application for copies of the manual should be addressed to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

2.2 Non-government publications. The following documents forms a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

UNIFORM CLASSIFICATION COMMITTEE, AGENT
Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, Illinois 60606.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT
National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Association, Inc. , Tariff Order Section, 1616 P. Street, N.W., Washington, D. C. 20026.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Standard samples. Standard samples are furnished solely for guidance and information to the contractor (see 6.3). Variation from this specification may appear in the standard sample, in which case, the specification shall govern.

3.2 First article. Unless otherwise specified (see 6.2), before production is commenced, finished insignia shall be submitted, or made available to the contracting officer or his authorized representative for approval. The approval of the first article authorizes the commencement of production but does not relieve the contractor of responsibility for compliance with all applicable provisions of the specification. The first article shall be manufactured by the contractor in the same facilities to be used for the manufacture of the production items.

3.3 Materials.

3.3.1 Copper base alloy. The copper base alloy from which all insignia are struck shall have a chemical composition of 63 to 68 percent copper, 0.15 percent maximum lead, 0.05 percent maximum iron, and the remainder shall be zinc except for a maximum total of 0.15 percent all other elements. The alloy shall be free from pits, scale (including red oxide), dents, nicks, cracks, deep scratches, segregations and foreign inclusions that cannot be removed in later processing.

3.3.2 Chemical finishing. The insignia shall be given a black chemical finish conforming to MIL-F-495.

3.3.3 Lacquer. The insignia shall be coated with a flat black lacquer and baked.

3.3.4 Attaching device. The hooded button back nut shall be made of brass and shall be provided with a toothed ring free to revolve. The threaded post shall be made of nickel silver (63.0 to 66.5 percent copper, 16.5 to 19.5 percent nickel, remainder zinc).

3.3.5 Hard solder. Hard solder shall be a nonferrous alloy having a melting point of not less than 1075°F.

3.3.6 Soft solder. Soft solder shall be a tin-lead alloy having a melting point of not less than 375°F.

3.4 Design. The insignia shall be an exact replica of the design on the Government loaned hubs (see 3.9) from which the contractor's working dies shall be extracted. The contractor's dies shall be tooled and polished to remove any dents, nicks, scratches or other imperfections. Type I and type II insignia are the same design with the exception that for type II insignia, the letter is superimposed on the caduceus (see Figure 1). The attaching device shall conform to Figure 2.

3.5 Construction.

3.5.1 Stamping and trimming. The insignia shall be struck in a manner that shall insure a well-defined die struck edge. Insignia shall be trimmed. All edges shall be clean, smooth, and free from burrs, drags, step and rough edges. The stamping and trimming shall not damage or distort the design or alter the shape of the insignia.

3.5.2 Soldering. Soldered parts shall be completely joined without excess solder and all excess flux shall be removed. Joints shall be clean, strong, smooth and free from burned or reduced

areas. When tested as specified in 4.6.1, the soldered device shall not crack or separate from insignia.

3.5.2.1 Letter D. The letter D for type II insignia shall conform to Figure 1. It shall be properly positioned on the caduceus and securely soft soldered thereto.

3.5.2.2 Screw posts. Screw posts shall be hard soldered to the center back of the insignia, positioned as shown in Figure 1. When tested as specified in 4.6.5, the screw threads shall not bind.

3.6 Finished measurements. The finished insignia shall conform to the measurements specified in Figures 1 and 2.

3.7 Finish. The surfaces of the insignia shall be as specified herein and shall match the standard sample. The insignia shall be given a black chemical finish, then lacquered. The lacquered chemical finish shall withstand the tests specified in 4.6.3.

3.7.1 Chemical finishing. The insignia shall be chemically finished black as specified in 3.3.2 on all surfaces including the edges.

3.7.2 Lacquering. The front surface and outer edges of the chemically finished insignia shall be thoroughly coated with the lacquer specified in 3.3.3. The dry lacquer film shall be continuous, level, adherent, free from lint, dust or other foreign matter and shall not flake or chip when tested as specified in 4.5.3. In addition, a piece of tissue paper shall not adhere to the dried lacquer surface when tested as specified in 4.6.2.

3.8 Marking. The contractor shall stamp his trademark or other identifying mark legibly and inconspicuously on the back of each insignia. The mounting card (see 5.1.1.1) shall be printed on the front lower edge with the following information:

Nomenclature _____
 NSN _____
 Contract No. _____
 Name of Contractor _____

3.9 Government-loaned property. The hub for the insignia, not including the letter D, shall be furnished by the Government. The hub furnished by the Government shall be used for making the contractor's working dies. Unless otherwise specified, the contractor's working dies shall remain his property. Upon completion of the contract, the hub shall be returned to a point designated by the contracting officer. The contractor shall be held responsible for the loss, damage or mutilation of the hub while in his possession. Determination of cost of replacing the

lost, broken or damaged hub shall be made by the Government.

3.10 Workmanship. The finished insignia shall conform to the quality of products established by this specification.

QUALITY ASSURANCE

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the government. The government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Certificate of compliance. Where certificate of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification. Components and materials listed below may be accepted on the basis of a contractor's certification of compliance for characteristics indicated.

<u>Component</u>	<u>Characteristic</u>	<u>Rqmt. para.</u>
Black chemical finish	Material identification	3.3.2
Lacquer	Material identification	3.3.3
Post and nut	Material identification	3.3.4
Hard solder	Material identification	3.3.5
Soft solder	Material identification	3.3.6

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

1. First article inspection (see 4.4).
2. Quality conformance inspection (see 4.5)

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in MIL-STD-105.

4.4 First article inspection. When first article is required (see 6.2), it shall be examined for the defects specified in 4.5.2.1 and 4.5.2.2. The presence of any defect or failure to pass any test shall be cause for rejection of the first article. The number of units to be inspected shall be specified by the contracting officer (see 6.2).

4.5 Quality conformance inspection.

4.5.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified qualified in this specification or applicable purchase document. Testing shall be performed on components listed in Table I for characteristics noted.

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TABLE I -- Component Testing

Component and lot expressed in terms of	Characteristic	Rqmt para	Test method	Rqmt spl unit	appl to lot avg	Determ per spl unit	Results Reported as	Sample Unit	Insp Lvl
Copper base alloy (one pound)	Chemical composition	3.3.1	4.6.4	-	X	2(Composite) for ea. element	To nearest 0.1 percent	8 ozs. or equivalent	S-1
	Resistance to hot soap solution 1/	3.3.2	4.6.3.1	X	-	Pass or Fail			
	Resistance to accelerated weathering 1/	3.3.2	4.6.3.2	X	-	Pass or Fail			
Black Chemical Finish									
Sample Unit	Insp lvl								
1 insignia	S-1								

1/ This test shall be performed on the unlacquered insignia.

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4.5.2 Examination of the end item. The end item shall be examined for defects in 4.5.2.1 and 4.5.2.2. The sample unit for these examinations shall be one insignia of each type contained in the contract. The inspection level shall be II (see 6.5).

4.5.2.1 General Defects. General defects shall be classified as follows, except for those numbered 1 thru 22, the defect shall be classified as Major when seriously affecting serviceability or appearance and Minor when affecting serviceability or appearance but not seriously.

Examine	Defect	Classification		
		Critical	Major	Minor
Color and finish	Does not compare favorably with standard sample.		101	
	Surfaces not smooth	1		
	Discoloration or stain clearly noticeable.	2		
	Abraded, scuffed, scratched or otherwise damaged.	3		
Chemical finish	Missing.		102	
	Not type specified.		103	
	Does not cover base metal completely.		104	
Lacquering	Not lacquered or area of no fiim.		105	
	Area of thin fiim.			201
	Lacquer not flat and dead black.		106	
	Not adherent, i.e., blistered, flaking or peeling	4		
	Foreign matter imbedded.	5		
	Discoloration clearly noticeable.	6		
	Coating not continuous and level, i.e., runs, drips, or drops.	7		
	Tacky finish.		107	

Examine	fect	Classification		
		Critical	Major	Minor
Design	Detail altered and does not conform to Government hub.		108	
	Any warp, twist, or distortion producing irregular surface contour or outline.	8		
Material	Detail struck over, resulting in a double impression.		109	
	Not fabricated of the specified material.		110	
Construction and workmanship	Not trimmed to die struck edge	9		
	Not pierced where required.		111	
	Piercing not clean and smooth, e.g., any burrs, cutter drill or file marks.	10		
	Design or shape altered by piercing.	11		
	Dent, pit, dig, gouge, nick, pores, metal mark, or mutilation.	12		
	Distorted, bent, malformed or otherwise impaired.	13		
	Burr, fin, rough or sharp edge, drag or step.	14		
	Metal cracked or fractured.		112	
	Any solder spatter on front or visible edge, exposed or concealed by finish.	15		
	Superimposed letter is missing, not securely soldered or soldering is not neatly accomplished		113	
	Superimposed letter is not centered or positioned as required.	16		

Examine	Defect	Classification		
		Critical	Major	Minor
Attaching device	Not specified type, size or material.		114	
	Defective, e.g., any part damaged or malformed affecting use.	17		
	Not positioned as specified.	18		
	Nut will not engage post, or is loose fit.	19		
Soldering	Post not completely joined by solder	20		
	Any area burned or reduced in soldering.	21		
	Flux or excess solder not removed.	22		
Identification Marking	Missing, incorrect, illegible, misspelled, not accomplished or place as specified.			202

4.5.2.2 Finished measurement examination. The insignia shall be examined for defects in dimensions. Any dimension that is not within the specified tolerances shall be classified as a defect. The inspection level shall be S-2 (see 6.5)

4.5.3 Testing of the end item. Testing of the completely fabricated insignia shall be performed in accordance with Table II for the characteristics shown therein. There shall be one determination per sample unit and results shall be reported as pass or fail. The sample unit shall be five completely fabricated insignia of each type. The requirements are applicable to the individual unit. The inspection level shall be S-1 (see 6.5).

TABLE II - End Item Testing

Characteristic	Requirement Paragraph	Test Method
Test for attaching device	3.3.4	4.6.5
Test for soldered joints:		
Hard solder	3.3.5	4.6.1.1
Soft solder	3.3.6	4.6.1.2
Tackiness test for lacquer film	3.7.2	4.6.2
Finish tests:		
Resistance to accelerated weathering	3.7.1	4.6.3.1

4.5.4 Examination of packaging requirements. The examination for compliance with packaging, packing and marking requirements shall be as specified in 4.5.4.1 and 4.5.4.2.

4.5.4.1 Examination for count of insignia in intermediate containers. Insignia packaged for shipment shall be examined to determine conformance with package markings and specified quantity. The sample unit for this examination shall be one box (interior package). Any box containing less than the specified or marked quantity of insignia shall be classified as a defect. The inspection level shall be S-2 (see 6.5). The lot size shall be the number of intermediate containers.

4.5.4.2 Inspection of packaging. An inspection shall be made to determine compliance with packaging, packing and marking requirements of Section 5. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery with the exception that it need not be sealed. Defects of closure listed below shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 (see 6.5).

<u>Examine</u>	<u>Defect</u>
Markings (exterior and interior)	Omitted, incorrect, illegible, of improper size, location, sequence or method of application.
Materials	Any component missing.
	Any component damaged, affecting serviceability.

Workmanship	Inadequate application of components, such as incomplete closure of case liners, container flaps, loose strapping, inadequate stapling
Weight or content (exterior and interior)	Number of intermediate containers is more or less than required; gross/net weight exceeds requirements.

4.6 Tests.

4.6.1 Tests for soldered joints.

4.6.1.1 Hard solder. Samples of insignia to be tested shall be placed in an oven maintained at 1075°F (+ 10°F) for not less than 15 minutes. While at the specified temperature, the insignia shall be lifted by one of the screw posts without the soldered parts separating.

4.6.1.2 Soft solder. Samples of insignia to be tested shall be placed in an oven maintained at 365° F (+ 5°F) for not less than 15 minutes. While at this temperature, the insignia shall be lifted by the superimposed letter without soldered parts separating.

4.6.2 Test for tackiness. At room temperature (60°F to 80°F) press a piece of tissue paper against the lacquered surface of the specimen for 30 seconds, using any pressure capable of being exerted by the thumb and two fingers. The tissue paper shall not adhere to the specimen, but shall fall free when pressure is released.

4.6.3 Finish tests. The lacquered black chemical finish shall meet the following tests:

4.6.3.1 Resistance to accelerated weathering. The test specimen shall be exposed for a minimum of 200 hours in accordance with method 6151 of FED-STD-141, then rinsed and examined for evidence of change in color or appearance.

4.6.4 Chemical composition test. Chemical composition shall be determined in accordance with test method III of FED-STD-151. Results shall be evaluated to determine compliance with the requirements specified in 3.3.1.

4.6.5 Test for attaching device. During assembly of the attaching device, the operation of the screw threads and toothed ring shall be observed to determine compliance with 3.3.4.

5. PACKAGING

5.1 Packaging. Packaging shall be level A or commercial, as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Unit packaging. Each insignia shall be individually mounted on an approximately 1-1/2 by 1-1/2 inch card and wrapped completely in tissue paper. In lieu of the tissue wrapping, the insignia may be individually packaged in an individual polyethylene bag measuring approximately 2 by 2-1/2 inches with a 1-inch lip along the open 2-inch dimension. The polyethylene flexible film shall be 0.0015 inch thick and transparent. Prior to or during the heat seal closing, excess air within the bag shall be expelled. Each bag shall contain a label (see 5.3).

5.1.1.2 Intermediate packaging. Seventy (70) insignia, unit packaged as specified in 5.1.1.1, of one type only, shall be packaged in a set-up paperboard box conforming to type I, variety 1, class A, style 4 of PPP-B-676, with the paperboard to be not less than 0.040 inch thick. Dimensions of the box shall be 7 inches in length, 5-1/2 inches in width, and 2-1/2 inches in depth.

5.1.2 Commercial. Insignia shall be packaged in accordance with manufacturer's commercial practice.

5.2 Packing. Packing shall be level B or commercial as specified (see 6.2).

5.2.1 Level B. Eight-hundred and forty (840) insignia, 12 intermediate packages of one type only, packaged as specified in 5.1.1, shall be packed in a fiberboard shipping container conforming to class-domestic, variety DW, size No. 1A of MIL-B-17757 and assembled, closed and reinforced in accordance with appendix thereto. The fiberboard used in fabricating boxes shall be grade 275.

5.2.2 Commercial. Insignia shall be packed to insure acceptance and safe delivery at destination. Containers shall be in accordance with Uniform Freight Classification Rules, National Motor Freight Classification Rules, U. S. Postal Service Manual or regulations of other carriers applicable to the mode of transportation.

5.3 Marking. In addition to any special marking required by the contract or purchase order, the intermediate and shipping containers shall be marked in accordance with the requirements of MIL-STD-129. A white paper label with the following information

legibly printed or stamped thereon in black shall be inserted within each polyethylene bag in order to permit ready identification or the marking may be stamped on the mounting card (see 3.8).

Nomenclature
Stock number
Contract number
Name of contractor

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful but is not mandatory.)

6.1 Intended use. The insignia covered by this specification is intended for wear by Navy medical and dental personnel while serving with Marine Corps units.

6.2 Acquisition requirements. Acquisition documents should specify the following.

- (a) Title, number and date of this specification.
- (b) Type required (see 1.2).
- (c) When first article is not required (see 3.2).
- (d) Selection of applicable level of packaging and packing (see 5.1 and 5.2).
- (e) Acceptance criteria

6.3 Standard sample. For information regarding the availability of standard sample, address inquiry to the procuring activity issuing the invitation for bids.

6.4 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.5 Acceptance criteria. The acceptance criteria below are recommended for use. The acceptance criteria as specified in the contract or purchase order shall be binding. Unless otherwise specified, the following acceptance criteria are in accordance with MIL-STD-105.

6.5.1 For end item visual examination. An acceptance quality level (AQL), expressed in terms of defects per hundred units, of 2.5 for major defects and 10.0 for total (major and minor combined)

defects is recommended.

6.5.2 For end item dimensional examination. An AQL, expressed in terms of defects per hundred units, of 4.0 is recommended.

6.5.3 Testing of the end item. An AQL, expressed in defects per hundred units, of 6.5 is recommended.

6.5.4 Examination of count in intermediate containers. An AQL, expressed in defects per hundred units, of 2.5 is recommended.

6.5.5 Inspection of packaging. An AQL, expressed in terms of defects per hundred units, of 2.5 is recommended.

6.6 Figures. Figures are furnished for information only. To the extent of any inconsistencies between the written specification and the figures, the specification shall govern.

6.7 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

6.8 Subject term (key word) listing.

Identification
Marine Corps
Navy

Preparing Activity:
Navy - MC
Project No. 8455-N478

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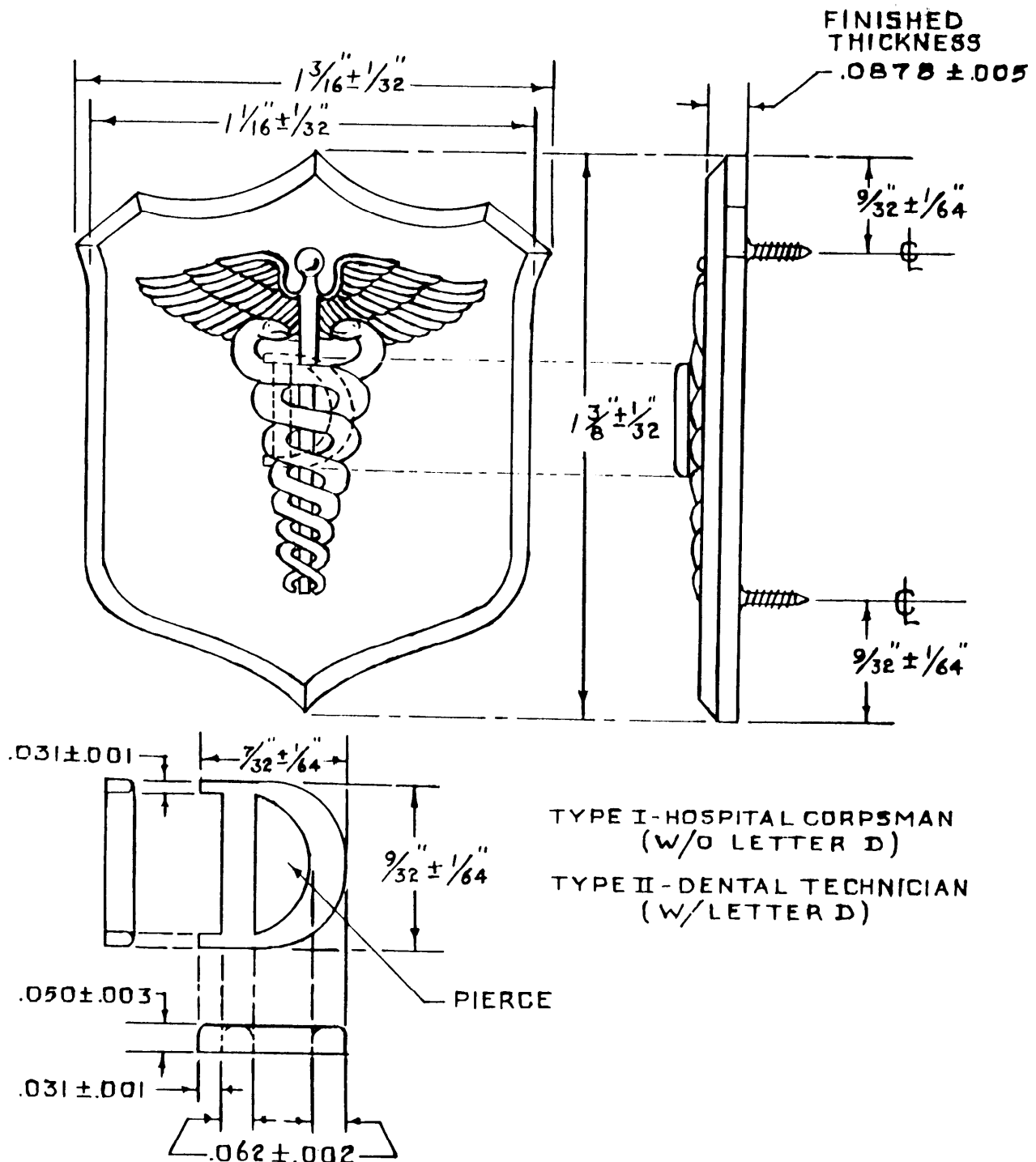


FIGURE 1. INSIGNIA, BRANCH OF SERVICE: METAL; HOSPITAL CORPSMAN AND DENTAL TECHNICIAN

Brass, Hooded Button Back Nut

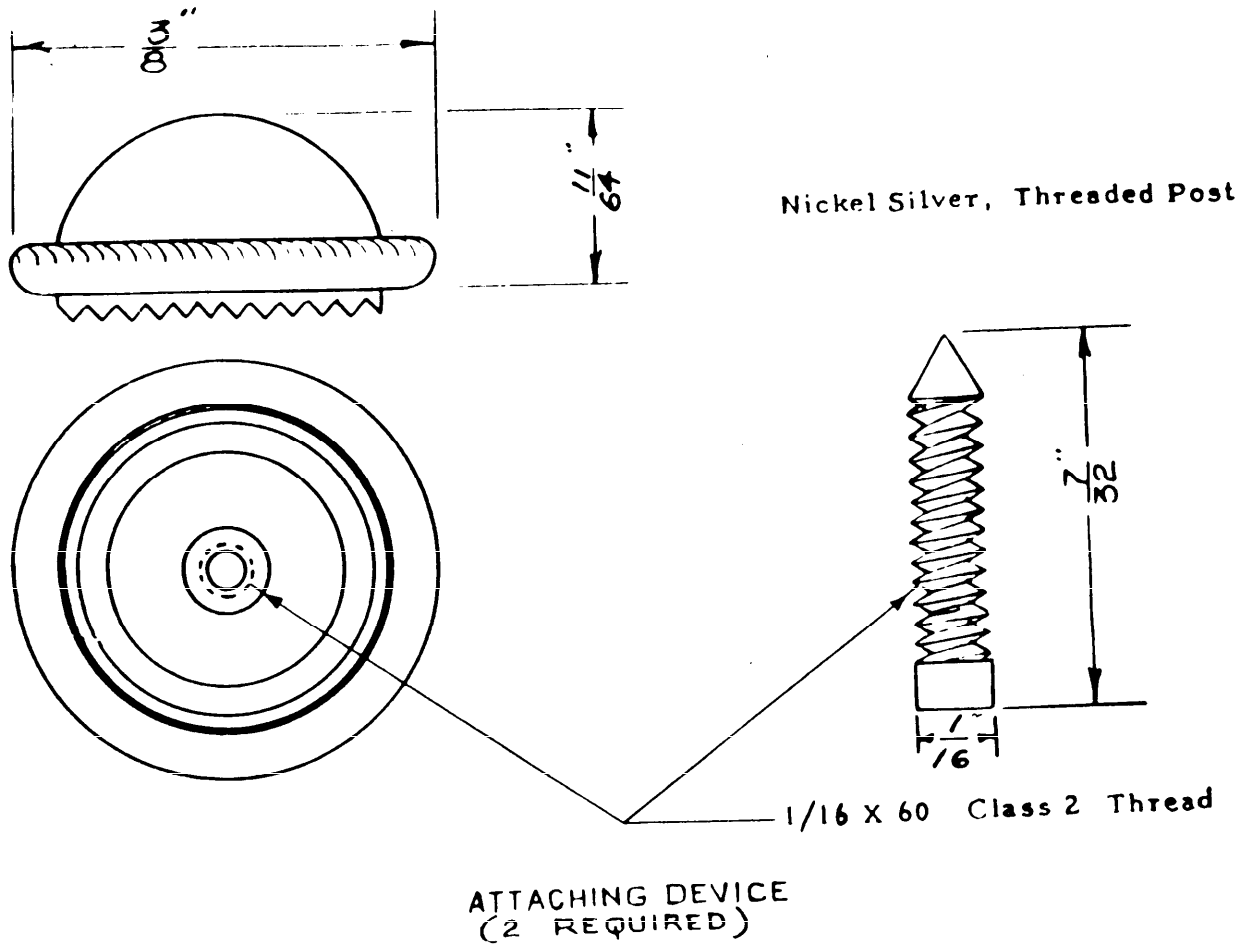


FIGURE 2. INSIGNIA, BRANCH OF SERVICE: METAL; HOSPITAL CORPSMAN AND DENTAL TECHNICIAN

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-I-19878C(MC)	2. DOCUMENT DATE (YYMMDD) 21 DECEMBER 1990
3. DOCUMENT TITLE INSIGNIA, BRANCH OF SERVICE: METAL; HOSPITAL CORPSMAN AND DENTAL TECHNICIAN			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME (Last, First, Middle Initial)		b. ORGANIZATION	
c. ADDRESS (Include Zip Code)		d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (if applicable)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME Commanding General, Marine Corps Research, Development, and Acquisition Command (PSE-C)		b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON	
c. ADDRESS (Include Zip Code) Washington, DC 20380-0001		(202) 696-1186/87/88 226-1186/87/88	
		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	